

PLAN IS AS FOLLOWS

adjust goal measurements

- (A) shims $\frac{1}{2}$ pix parallelism entrance + exit
- (B) F2 H, V both centered entrance
- (C) shims $\frac{1}{3}$ pix parallelism entrance + exit
- (D) F2 H, V at same pos'n entrance + exit

entrance		exit	
(V)	(H)	(V)	(H)
1 $\frac{3}{4}$ UP	$\frac{1}{4}$ UP	$\frac{1}{4}$ UP	$\frac{1}{4}$ UP
$\frac{1}{4}$ R	$\frac{7}{8}$ R	$\frac{1}{2}$ R	$\frac{3}{8}$ R

avg pos'n

parallelism error

$\frac{7}{8}$ UP $\frac{1}{4}$ UP
 $\frac{7}{8}$ R $\frac{5}{8}$ R

$\frac{1}{4}$ UP 0
 $\frac{3}{4}$ L $\frac{1}{2}$ L

NOTE : on this page only I list up/down above L/R

after shim removal
(took 16 mils off front of V Gnd)

~~avg~~

entrance

(V)

(H)

$1\frac{1}{4} R$

$\frac{3}{4} up$

exit

(V)

(H)

$\frac{3}{4} R$

$\frac{1}{2} up$

avg. pos N

(V)

(H)

$1 R$

$\frac{5}{8} up$

parallelism error

(V)

(H)

$\frac{1}{2} L$

$\frac{1}{4} down$

parallelism good to $\frac{1}{2}$ pixel

more to step B

adjusted all four FZ degrees of freedom
attempting to get translation perfect
for both beams

entrance

(V)	(14)
$\frac{1}{2} R$	$\frac{5}{8} R$
$\frac{1}{4} \uparrow$	$\frac{1}{8} \uparrow$

exit

(V)	(H)
0	0
0	$\frac{1}{8} \uparrow$

arg

(V)	(H)
$\frac{1}{4} R$	$\frac{3}{8} R$
$\frac{1}{8} \uparrow$	$\frac{1}{8} \uparrow$

parallelism

(V)	(H)
$\frac{1}{2} L$	$\frac{5}{8} L$
$\frac{1}{4} \text{ down}$	0

step (B) done - move to step (C)
 added 32 ml (8×4) to inside of H-grid

entrance

(V)	(M)
$\frac{1}{2} R$	$\frac{1}{2} R$
$\frac{1}{4} \uparrow$	$\frac{1}{8} \uparrow$

exit

(V)	(H)
0	$\frac{3}{4} R$
0	$\frac{1}{8} \uparrow$

arg

$\frac{1}{4} R$	$\frac{5}{8} R$
$\frac{1}{8} \uparrow$	$\frac{1}{8} \uparrow$

parallelism

$\frac{1}{2} L$	$\frac{1}{4} R$
$\frac{1}{4} d$	0

Made V-grid have only 16 mil
on front

made H-grid have only 3 8-mil
shims on front side, not 4

entrance

exit

(V)

(H)

$\frac{3}{8}$ R

$\frac{5}{8}$ R

$\frac{3}{8}$ up

$\frac{1}{8}$ up

(V)

(H)

$\frac{1}{2}$ R

$\frac{5}{8}$ R

$\frac{3}{4}$ down

$\frac{1}{8}$ up

average

(V)
 $\frac{1}{2}$ R

(H)
 $\frac{5}{8}$ R

$\frac{1}{4}$ down

$\frac{1}{8}$ up

parallelism

(V)
 $\frac{1}{8}$ R

(H)
O

$\frac{1}{8}$ down

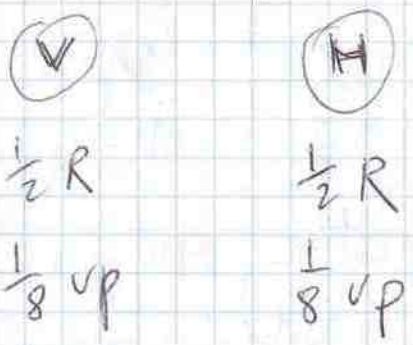
O

$32+16+8$ $8+8+8$

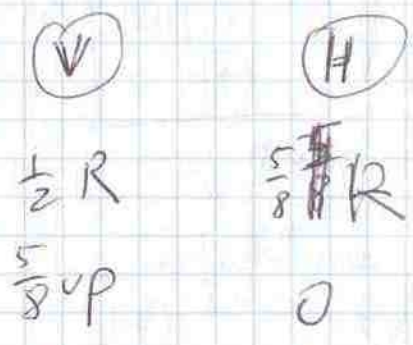


$16+16+8+8$

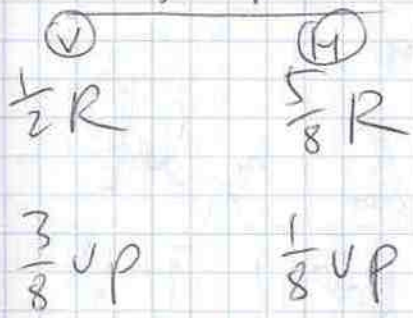
entrance



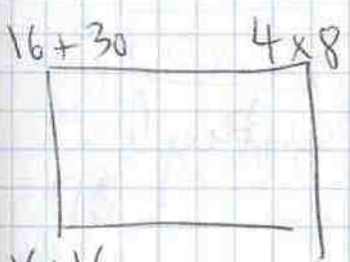
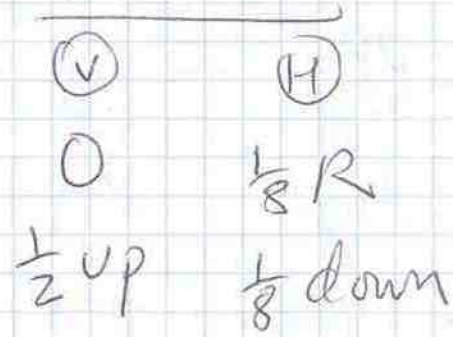
exit



avg. pos'n



parallelism

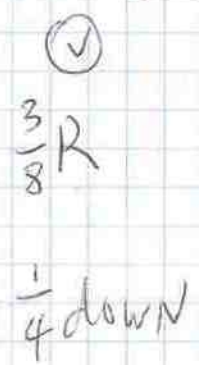


meant to add 8 more here

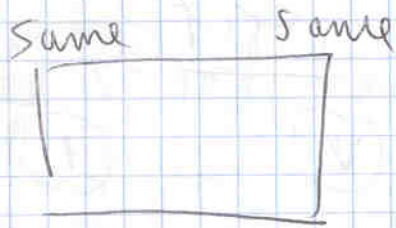
entrance



exit



parallelism $\frac{1}{2}down$



16+16+8

entrance
 (V) (H)

$\frac{1}{2} R$
 $\frac{1}{4} up$

exit
 (V) (H)

$\frac{1}{8} R$
 $\frac{1}{2} down$

parallelism $\frac{3}{8} left$
 $\frac{3}{4} down$

removed all shims from bottom & tightened bottom

entrance

(V) (H)

$\frac{5}{8} R$ $\frac{3}{4} R$
 $\frac{1}{8} up$ $\frac{1}{4} up$

~~start~~

exit

(V) (H)

$\frac{1}{4} R$ $\frac{7}{8} R$
 $\frac{1}{2} up$ $\frac{3}{8} up$

parallelism $\frac{3}{8} left$, $\frac{1}{8} up$

ON TO STEP D

avg
 (V) (H)
 $\frac{1}{2} R$ $\frac{7}{8} R$
 $\frac{3}{8} UP$ $\frac{1}{8} UP$

parallelism
 (V) (H)
 $\frac{3}{8} L$ $\frac{1}{8} R$
 $\frac{3}{8} UP$ $\frac{1}{4} down$

entrance

exit

(V) (H)
 $\frac{1}{2} R$ $\frac{3}{4} R$
 $\frac{1}{8} UP$ $\frac{1}{8} UP$

(V) (H)
 $\frac{1}{8} R$ $\frac{3}{4} R$
 $\frac{1}{2} UP$ \emptyset

(V) (H)
 avg
 $\frac{5}{16} R$ $\frac{3}{4} R$
 $\frac{5}{16} UP$ $\frac{1}{16} UP$

go to ~~same~~ Right V: $\frac{7}{16}$ pixel
 go to down V: $\frac{1}{4}$ pixel

$\frac{1}{8}$ down from the first point
 7 right

entrance

exit

(V)

(H)

(V)

(H)

~~1~~ R

$\frac{3}{4}$ R

$\frac{7}{8}$ R

$\frac{7}{8}$ R

$\frac{1}{8}$ down

$\frac{1}{8}$ up

$\frac{1}{4}$ up

0

file # 044237

044238

avg

parallelism

(V)

(H)

$\frac{15}{16}$ R

$\frac{13}{16}$ R

$\frac{1}{8}$ L

$\frac{1}{8}$ R

$\frac{1}{16}$ up

$\frac{1}{16}$ up

$\frac{3}{8}$ up

$\frac{1}{8}$ down

added Dec. '08

entrance

exit

avg.

mini

H-V

~~$\frac{1}{4}$~~ Left

0

$\frac{1}{8}$ left

.14 left

~~$\frac{1}{4}$~~ up

$\frac{1}{4}$ down

0

.24 up

seems to match entrance?

9/2 Quite consistent V_{null} measurements
 Compared with June 4th:
 Not exactly the same, though

70	-128
75	-95
80	-63
85	-32
90	-15
95	-8
100	-15
105	-28
110	-56
70	-125

measuring signal in 6,25
 which is the peak

Oct. 2008 SHARP Observing Run

J.E.U., JAD

SHARP-II alignment

file 045525 - exit aperture. center = [16.47, 6.62]
 26 entrance " " = [16.50, 6.72]

SHARP alignment

file 045527 entrance aperture 045528 exit aperture
 H: $\frac{1}{2}0$, $0L-R$ ~~0.08R, 0.05U~~ H: $0U0$ $\frac{1}{2}R$
 V: $\frac{1}{2}U$, $\frac{1}{4}L$ V: $0U-0$ $1R$

~~045528~~

by Sit Gauss

H: 1.0 U, 0.41 L
 V: 0.15 D, 0.96 L

H ~~0.25~~ 1.25 U 0.93 L
 V 0.24 U 0.71 L

alignment = 1.15 U-D, 0.55 L-R
 parallel H 0.25 U-D, 0.54 L-R
 V 0.39 U-D, 0.25 L-R

~~1.01~~ ~~0.27~~ 1.00 U-D, 0.22 L-R
~~0.39 U-D~~

re-try measurement

file 045529
 H $\frac{3}{4}$ pix R, 0 U-D
 V $\frac{1}{2}$ pix R, $\frac{1}{2}$ pix U

045530
 H $\frac{1}{2}$ pix R, 0 U-D
 V: 1 pix R, $\frac{1}{4}$ pix D

w/ Sit Gauss

0.82 L 0.42 U
 0.74 L 0.21 U

0.58 L 0.28 U
 0.96 L 0.15 U

alignment = $\frac{1}{2}$ pix $\frac{1}{2}$ pix
 = 0.08 0.21

$\frac{1}{2}$ pix $\frac{1}{4}$ pix
 0.38 0.13

parallel H = $\frac{1}{2}$ pix, 0 pix
 0.24 0.14

V = $\frac{1}{2}$ pix $\frac{3}{4}$ pix
 0.22 0.36

10/23/08

Box 4 Leveling

77

Front long side
0.12°Back long side
0.13°Exit short side
0.09°Entrance short side
0.10°

10/24/08

John & Jackie

HWP alignment tests

cold load → aperture → single grid → SHARP

grid wires are vertical to within 0.5

<u>File</u>	<u>HWP angle</u>	<u>H</u>	<u>V</u>
045531	50	(6.5)	(6.25)
	50	-5	-79
32	60	-10	-70
33	70	-41	-50
34	80	-63	-24
35	90	-82	-5
36	100	-86	-4
37	110	-68	-22
38	120	-44	-44
39	130	-16	-64
40	140	-5	-70
↓ 41	50	-3	-73